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Request from: Public Utilities Regulatory Authority

Question:

(DELAYED STORM REMEDIATION) Refer to the Companys Response to EOE-120. The Companys response stated Storm damaged trees may take days, weeks, or months to remove depending on the level of damage. If another storm event occurs within that time tree crews may shift to supporting immediate restoration for a short period of time and then return to addressing the previous storms hazardous vegetation once the second storms priorities are completed. Respond to the following:

a. Explain the types of storm damage that could take weeks, or months to remove and describe how this delayed activity is necessary for storm recovery efforts. As part of the response, specifically identify what the Companys reference to remove means and clarify if the Company is obligated to perform all of the delayed activities. If the Company is obligated, please cite the applicable Decisions, Regulations, or Statutes.
b. Identify how the Company inventories and tracks the specific storm damage that is subject to delayed remediation to ensure it is aligned to the correct storm event. As part of the response, please provide an example of any inventories, reports, etc that supports the response.
c. Explain how storm damage that is not remediated for weeks, or months would be necessary for storm remediation efforts.

Response:

a. During storm events, especially those that include high winds, rain, snow, or ice, trees may fail entirely, or parts of a tree may be damaged. When an entire tree fails or a part of a tree is damaged and impacts electrical infrastructure, the tree or tree part is cleared as part of storm restoration. However, trees that are damaged by storm but have not fallen often remain following an event. Damage to the trunk or a large leader or branches in the canopy may result in a standing tree that is compromised structurally. Storms may cause trees to develop cracks or seams that will cause the tree to fail in the short term. Some trees that are uprooted during a storm event may fall over slowly or may be held up in other trees that will temporarily hold their weight but fail in the near term. Branches in trees may be broken but remain hanging in the tree's canopy, dangling above electrical infrastructure, and waiting for a future wind to finalize the break or dislodge a broken limb from the tree. These future potential threats to the system are often not resolved in real time during the

restoration portion of the event because the Company's priority is to clear vegetation that poses an immediate safety or reliability risk (including blocked roads) and restore customers. Therefore, the Company returns after an event to address storm damaged trees and limbs that the Company finds to be a threat to reliability and public safety.

Patrolling for and removing storm damaged vegetation is a standard part of utility vegetation management storm response and is not included in the Company's normal vegetation management cycle. The Company has described post vegetation storms in previous storm cost recovery testimony. These storm damaged tree conditions are identified through follow up items noted on restoration events, non-outage events identified during the restoration post restoration patrols by operations, engineering or vegetation management or inquiries from customers or towns. There may be a delay in providing the assessment and mitigation to storm damage locations as the information from the patrols by other Eversource departments or locations provided by customers or towns may be received at different time periods after the completion of restoration. Mitigation of a storm damaged tree depends on the condition and location of the tree, access to tree and requirements to the mitigate the damage as there is variable effort and time needed to complete the work. This can vary from cutting a single broken limb to requiring a crane or scheduling an outage to mitigate the risk to the system, workers and the public.

b. Following an event, tree contractors may be instructed to complete storm damage patrols and perform mitigation trimming or tree removals by Eversource Arborists.

    a. Each Area Work Center ("AWC") has an Eversource Arborist who has extensive experience and is familiar with the area that coordinates tree contractor resources during both restoration and post-storm vegetation sweeps.

    b. The AWC Arborist will direct post-storm patrols depending on the level of vegetation damage sustained during a storm event. Localized areas that experienced a higher magnitude of tree caused outages are assigned more detailed sweeps. If vegetation damage was widespread, post-storm sweeps will encompass the entire service area.

    c. Eversource Arborists provide the tree contractors with overhead circuit or town maps to be patrolled for broken limbs and storm damaged trees based on where the storm impacted the Company's system. Guidelines are provided to the tree contractors as to what constitutes storm damaged vegetation. Please refer to Q-EOE-201, Attachment 1, for the Company's Vegetation Management Storm Patrol Guidelines.

d. Eversource's tree contractors have practical experience and are trained to recognize the signs of recent storm damage. Conducting vegetation patrols post-storm is an industry wide practice. Contractors will immediately remove broken trees or branches as they discover them throughout their patrols. Occasionally, a job may require specialty equipment or a scheduled outage to complete the job safety. Any locations requiring additional scheduling to complete are relayed back to the supervising AWC Arborist for high priority scheduling.

e. The Arborists oversee this contractor tree work and verify timesheets are correctly billed to the right storm event.

Immediate threats as described in the guidelines are addressed as the patrol is performed or as soon as a crew can be committed to the work. Inventories and tracking is done by the crew and indicated on the timesheet or storm location sheet. Storm damaged trees that are potential threats as described in the guidelines are not tracked in a standardized way as they are identified and communicated through various means including customer calls, communications from towns, or provided lists from Engineering patrols. Please refer to Q-EOE-201, Attachment 2, for an example copy of an invoice with an Engineering patrol storm damaged tree list.

c. The volume of storm damaged vegetation following a strong storm system may be significant. Storms such as high wind events, heavy snow, ice events, lighting, microbursts and thunderstorms may all result in compromised trees that did not fail immediately but are threats to reliability and public safety. The time required to address lingering vegetation hazard may vary from the time it takes to remove a broken branch to days for removing a large storm compromised tree. Given the tree crews available and on system, it may take anywhere from days to weeks to months to receive and address all storm damaged trees from a specific storm event.

Working on storm damaged vegetation is entirely separate than scheduled vegetation management work and is managed and billed as such. The Eversource AWC Arborist oversees contractor tree crews removing storm damaged vegetation which may be reported from various sources beyond tree contractor patrols. Following a storm event, tree wardens and customers will call in to report storm damaged vegetation that are immediate threats which adds to the volume of damaged trees discovered on patrols. Not all trees can be removed immediate upon discovery due to the instability of the trees. Depending on the tree condition and location, arranging a crane or special equipment may be needed to complete the tree removal safely. Storm damaged trees are more likely to require specialty equipment due to the unpredictable nature of their stability compared to regularly scheduled vegetation work. Arrangement may also be needed to temporarily turn off

power while the tree work is completed if the tree's instability cannot be controlled or non-insulated equipment such as a crane is required.